

Methods for Estimating Demand for Drugs & A Model for Managed Competition in Pharmaceutical System in Iraq

I. What questions to answer?

Along with Iraqi pharmaceutical system shifting from the centralized system to a system characterized by centralized procurement and decentralized distribution coupled with the reform of health care financing systems as specified in the vision paper, several questions have emerged. Among these that need investigation are: (1) what is the demand for formulary drugs? And (2) what will be the mark-up rate for drugs (risk adjusted) that allows for recovery of the costs for storage and distribution?

This short document sketches some of the thoughts on the first question.

II. Why estimating the demand?

The rationales for estimating the demand are as follows:

At both national and governorate levels, the estimation of demand provides the most essential information on the quantity of each of formulary drugs that need to be procured by the centralized pharmaceutical procurement agency, and to be ordered by governorate warehouses, annually and at particular intervals. The demand estimates should be robust enough to prevent serious underestimation that leads to stock-outs of drugs, and to prevent serious overestimation that leads to excess inventory that require larger storage space that would otherwise unnecessary, and wastage of drugs due to potential expiration.

III. What approaches of estimating demand?

1. Because both governorates and the nation as a whole need demand information, the estimation of demand should be performed by starting at governorate level, and the estimates of governorate demand can be consolidated at national level forming the national demand for drugs.
2. The exercise of demand estimation doesn't have to cover all governorates. An efficient approach is: (1) to divide all governorates into three clusters according to the potential differences in drug demand derived from differences in disease profiles; (2) to perform demand estimation in select representative governorates from within each of the governorate clusters; (3) the demand estimates in selected governorates can then be generalized to all other governorates according the average demand per 1000 population.
3. The demand estimation should be based on a survey of pharmacies located in primary health centers, public clinics, and hospitals (both public and private). Private pharmacies may be excluded if they mainly sell non-formulary drugs, and should be included if they also sell formulary drugs. This can be a sample survey covering representative health facilities. Governorate demand can be estimated

according to the estimated demand per 1000 catchment population of the sample facilities.

4. The demand estimates must cover a time period of 1 year in order to observe the seasonal changes, which is important to for the decision on how much to procure or order for a particular time period. This is particular the case for those drugs with significant seasonality.
5. The estimated demand should be actual demand, which is equal to the quantity ordered – (inventory at the beginning of the interval + inventory at the end of the interval) if there is a surplus OR equal to the quantity ordered + the unmet demand if there is a shortage of supply. Thus, actual demand should include both realized demand, and unmet demand. Using the quantity ordered as a proxy of demand will lead to either underestimation of demand (because of stock-out) or over-estimation of demand (because of surplus in the inventory).
6. Ideally, the estimation should cover all formulary drugs. However, given the time and budget constraint, the investigation may wish to choose a basket of drugs which capture a major percent of the drug costs.
7. The implementation of formulary will have impacts on the demand for some of the drugs, which can substitute each other. For example there are two drugs A and B which are substitutable; and the formulary excludes drugs B. The implementation of the drug formulary will lead to great increase in drug A. The ignorance of the impact of drug formulary will lead to underestimation of the demand for drug A.
8. The demand for a drug is a function of copayment rate. Using demand data of previous year when the copayment was removed as an estimate of demand for later years when copayment will be issued will lead to overestimation of demand.

IV. What data needed?

Data will include both qualitative and quantitative. Qualitative data will be collected using interview and observation instructions, and quantitative data will be collected using a structured questionnaire.

The design of these instruments should be based on a completed research design that provides necessary guides for the instrument design, as well as a field visit which provides necessary understanding of the drug delivery system and data availability. In addition, the designed instruments should be tested before putting into utilization. Here I map the major questions associated with the above sketched methods.

Qualitative data (health facility interview and observation):

1. Drug ordering process
2. Drugs storage (space, security, and stock-out and surplus)
3. Recordkeeping (storage ins and outs, pharmacy records)
4. Computer availability and utilization (hardware, software, data and their accuracy, knowledge and skill capability)
5. Infrastructure (storage, pharmacy)

6. The status of rational use of drugs
7. Key informants' recommendation for improving rational use of drugs
8. Key informants' recommendation on how to improve pharmaceutical delivery systems

Quantitative data (health facility questionnaire):

General information:

1. Name of interviewer
2. Date of data collection
3. Name of health facility
4. Types of health facility (list and check)
5. Population in catchment area (governorate population need also obtained separately)
6. The usual number of drugs (types and forms) available in the facility
7. Average interval of drug ordering
8. Drug storage space (storage and pharmacy)
9. The maximum amount of drug increase (%) allowed with current storage space

Drug specific information (for selected drugs)

1. Name and form of drug
2. List of drugs which are substitutes of the above drug (and check level of substitution, and inclusion in or exclusion from the formulary)
3. The ordered quantity of drugs (the selected drug and the excluded substitutes) by interval (month) for the previous year.
4. Inventory by months
5. The percentage of increase needed in order to meet the demand (professional judge demand)
6. estimated increase in use of this drug due to switch from with copayment to without copayment (estimated % increase).

Managed Competition Model for Iraqi Pharmaceutical System

1. Poor performance is associated with lack of competition and motivation to perform better
2. Competition can be created in the quasi-public market
3. The main strategies are: multi-public entities and dual markets
4. The desirable result is efficient entities will expand and inefficient ones will be out of the market
5. The space of privatization will depend on the results of competition
6. Both public and private providers are paid an inclusive capitation fee and case fee, which covers all costs
7. Providers have to purchase drugs from distributors (both public and private) based on their price and quality
8. Distributors purchase drugs from both public procurement agency and private entities, and are allowed to have a mark-up to cover their costs
9. This model changes the flow of fund: government funds will first flow into insurance funds, rather than to procurement, so that funds will flow to efficient entities
10. Government will have to use global budget and may have to pay for salaries of government procurement, and allow public entities use and maintain the current capitals
11. This competitive market is expected to improve performance

DRUG PROCUREMENT

DRUG DISTRIBUTION

SERVICE PROVISION

SERVICE PURCHASING

